Build a Simple Rain Barrel

What is a rain barrel?

A rain barrel is a system that collects and stores rain water from your roof that would otherwise be lost to runoff and diverted to storm drains, streams and the Chesapeake Bay. Composed of a 55 gallon drum, a vinyl hose, PVC couplings, a screen grate to keep debris and insects out, and other off-the-shelf items, a rain barrel is relatively simple and inexpensive to construct and can sit conveniently under any residential gutter down spout.

What are the advantages of a rain barrel?

Lawn and garden watering make up nearly 40% of total household water use during the summer. A rain barrel collects water and stores it for when you need it most -- during periods of drought -- to water plants, wash your car, or to top a swimming pool. It provides an ample supply of free 'soft water' to homeowners, containing no chlorine, lime or calcium making it ideal for gardens, flower pots, and car and window washing.

A rain barrel will save most homeowners about 1,300 gallons of water during the peak summer months. Saving water not only helps protect the environment, it saves you money and energy (decreased demand for treated tap water). Diverting water from storm drains also decreases the impact of runoff to streams and the Chesapeake Bay. Therefore, a rain barrel is an easy way for you to "Save the Bay" and have a consistent supply of clean, fresh water for outdoor use, FREE.

How Can I purchase a ready-made rain barrel?

Ready-made rain barrels can be purchased from numerous companies. Below are just a few (Listing does not constitute an endorsement by the Department of Natural Resources or the State of Maryland):

- Arlington Echo www.arlingtonecho.org/rainbarrel.htm
- D&P Industries Incorporated (DPI) produces the Urban Rain Barrel. (503) 286-9866. http://www.therainbarrel.com/index.html
- Spruce Creek Company produces the Spruce Creek Rainsaver. 1-800-940-0187. http://www.sprucecreekrainsaver.com/

How do I build a simple rain barrel?

Building your own rain barrel is relatively easy. The following approach is relatively inexpensive and hassle free (about $15.00 to build). All of the following materials can be purchased at your local home improvement center or hardware store.

You will need the following materials:


- One 55-gallon drum (available for $5 from the Pepsi Bottling Company in Baltimore. Contact: Charlie Dickerson, 410-366-3500 for more information)
- 3 1/2ft vinyl hose (3/4" DD x 5/8" ID)
- One 4" diameter atrium grate
- One ½" PVC male adapter (will be attached to bottom of rain barrel)
- One 3" vinyl gutter elbow
- Waterproof sealant (i.e. plumbers goop, silicone sealant, or pvc cement)
- One 3/4" x ½" PVC male adapter (will be attached to end of hose and readily adapted to fit standard garden hose)
- Teflon tape

You will need the following tools:

- Drill with 3/4" bit (or use hole saw to cut 3/4" hole)
- Router, jig saw, or coping saw
- Measuring tape
- Other items as needed

INSTRUCTIONS

Attaching adapter to bottom of barrel

1. Using a measuring tape, measure about 1 inch above the bottom of the barrel where the curvature along the bottom rim ends and the barrel side begins to rise toward the top. Using a 3/4" bit (or hole saw), drill a hole through the barrel.
2. Screw the ½" PVC male adapter into this newly drilled hole. The hard PVC threads cut matching grooves into the soft plastic of the barrel.
3. Un-screw the ½" PVC male adapter from the hole. Wrap threads w/teflon tape tightly. Coat the threads of the coupler with waterproof sealant. Screw the coated adapter back into the hole and let it sit and dry for 24 hours.
4. Attach 3 1/2 foot vinyl hose to the PVC male adapter.

Fitting atrium grate to the top of the barrel (filters out large debris)

5. Using the atrium grate as a template for size, mark a circle at the center of the top of the drum (Locating the rainwater inlet in the center of the barrel allows the barrel to be pivoted without changing the position of the down spout).
6. Drill a ½" hole in the inside of the marked circle. Use a router, jig or coping saw to further cut within the marked circle until the hole is large enough to accommodate the atrium grate (the atrium grate is used to filter out large debris). Make sure not to make the hole too big–you want the flange of the atrium grate to fit securely on the top of the barrel without falling in. Placing a scrap piece of fine mesh window screen inside or outside of the grate will provide filtering of finer debris and mosquito control.

Cutting out a notch at top of barrel to hold adapter and hose

7. Using a ½" bit or saw, cut out a notch at the top of the barrel rim (aligned so that it is above the outlet at the bottom of barrel). The notch should be large enough so that the coupler will firmly snap into place (see photo below).

Elevating the rain barrel

8. The rain barrel is designed to take advantage of gravity. Water will flow from the vinyl hose when the hose is below the barrel. Therefore, place the barrel on cinder blocks or a sturdy wooden crate at least 15 inches from the ground.

Modifying the down spout to divert water to barrel

9. Modify the down spout with a gutter elbow to divert water into the barrel (see instruction sheet for details).

Alternative Design Considerations

Simple Rain Barrel

Steps 5 and 6 (using atrium gate) can be by-passed if your gutter filters water prior to entering rain barrel. Most gutter systems have screens to trap leaves and other debris. If you choose to do this, make sure that down spout is placed directly over the outlet at the top of the barrel.

Some rain barrel designs call for an on/off valve instead of adapter and hose. A good on/off valve installed from the inside of the barrel is a sound and sturdy option to minimize leaks. However, this would require you to cut out the top of the barrel to gain access to the inside, which may not be desired if you want to keep the barrel intact. Another option is to directly screw an on/off valve to the side of the barrel without access to the inside. These on/off valves are usually less sturdy and are subject to leaking and breaking. By using the PVC adapter with vinyl hose approach, as specified in this brochure, you have room for other design options if things fail.